

Tuberculosis Surveillance Report

Arizona, 2002

**Arizona Department of Health Services
Bureau of Epidemiology and Disease Control
Office of Infectious Disease Services
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**Tuberculosis Control Program
3815 N Black Canyon Highway
Phoenix, Arizona 85015
602 230-5936**



EXECUTIVE SUMMARY

There were 263 cases of active tuberculosis (TB) reported in Arizona in 2002, representing a 9% decrease in the number of cases compared to 2001, but a 1.5% increase in the number of cases since 1992. While the number of TB cases fluctuates from year to year, there has been no consistent trend downward during the past 10 years. TB case rates, however, have been declining during this same period due to an increasing population. The rate of TB in Arizona declined to 4.8 cases per 100,000 persons in 2002, an 11% decrease since 2001 and a 28% decrease since 1992. This places Arizona 39th by percentage change in case rate during the period 1992-2002 among 50 states and the District of Columbia. The United States (U.S.) case rate in 2002 was 5.2 cases per 100,000, which represents a 7% decrease since 2001 and a 50% decrease since 1992 (Table 1 and Figure 1). The majority of TB cases (59%) in Arizona in 2002 occurred in working age adults (25-64 years) with a mean age of 44.5 years and median age of 44 years, with males accounting for 65% of cases (n=170). The breakdown by race/ethnicity is 55% Hispanic, 19% white, non-Hispanic, 14% Native American, 7% Asian and 6% black, non-Hispanic. The TB case rate for Hispanics is 10.4 cases per 100,000, more than double the rate for all races in Arizona, additionally, 78% of pediatric (<5 years) TB cases in 2002 occurred among Hispanics (Table 2 and Figure 3). The occurrence of TB in young children represents ongoing transmission in the community and is an indicator of efficacy of TB program activities. The percentage of TB cases in young children (<5 years) has not declined in Arizona since 1993, with an average of 3.9% of TB cases occurring in children less than five years for the period 1993 to 2002.

Total resistance to the anti-TB drug isoniazid (INH) was 5.3% in 2002. Drug resistance patterns vary greatly by country of origin with 1.0% of U.S.-born persons resistant to at least INH without rifampin (RIF) resistance compared to 8.1% of foreign-born persons. Persons resistant to at least INH and RIF (multi-drug resistant) accounted for only 0.5% of Arizona TB cases in 2002. All multi-drug resistant TB cases in the past five years in Arizona have been foreign-born (Table 4). Foreign-born persons accounted for 52% of Arizona TB cases in 2002 with Mexico listed as the country of birth for 76% of foreign-born cases. Persons from Asian countries contributed an additional 13% of foreign-born cases (Figure 4 and Figure 5). Other important risk factors identified among Arizona TB cases in 2002 are, excess alcohol use (14.8%), homelessness within the past year (11.0%), non-injecting drug use (9.1%), residence in a correctional facility (7.2%), HIV coinfection (6.5%) and injecting drug use (3.8%). Among persons in the 25-44 year age group, 14.3% of TB cases were coinfecting with HIV (Table 5). Maricopa County accounted for 65% (n=172) of 2002 TB cases; other high morbidity counties include Pima 9% (n=24), Pinal 5% (n=14) and Yuma 5% (n=14). Apache County had the highest case rate in 2002 (14.3 cases/100,000), followed by Navajo County (8.9 cases/100,000), Yuma County (8.2 cases/100,000) and Pinal County (7.3 cases/100,000) (Figure 6).

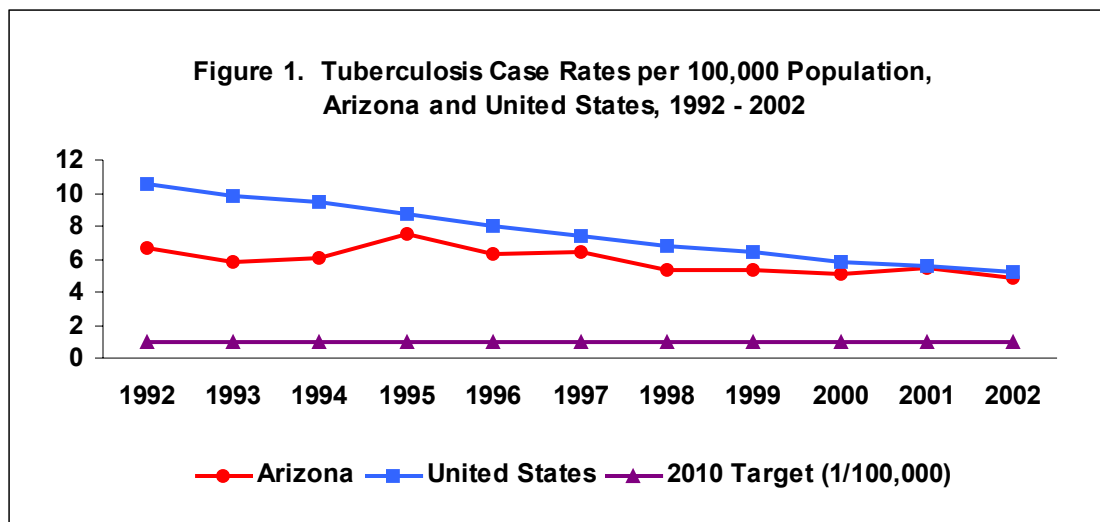
Table 1. Tuberculosis Cases and Case Rates per 100,000 Population, Arizona and United States, 1992 - 2002

Year ^b	Arizona			United States ^a	
	Cases	Population ^c	Rate	Cases	Rate
1992	259	3,858,825	6.7	26,673	10.5
1993	228	3,946,975	5.8	25,287	9.8
1994	247	4,036,875	6.1	24,361	9.4
1995	317	4,184,723	7.6	22,860	8.7
1996	282	4,462,717	6.3	21,337	8.0
1997	296	4,595,379	6.4	19,851	7.4
1998	254	4,722,097	5.4	18,361	6.8
1999	262	4,924,350	5.3	17,531	6.4
2000	261	5,130,632	5.1	16,377	5.8
2001	289	5,307,331	5.4	15,989	5.6
2002	263	5,472,750	4.8	15,078	5.2

^aData from U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, available at: www.cdc.gov/nchstp/tb/

^bYear reported reflects the year case was verified by Arizona Department of Health Services.

^cPopulation denominators for 2001 and 2002 are estimates from the Arizona Department of Economic Security (<http://www.de.state.az.us/links/economic/webpage/popweb/EEC-02.pdf>). Year 2000 denominators are from the 2000 U.S. Census. Population projections from Arizona Department of Economic Security are used for years prior to 2000.



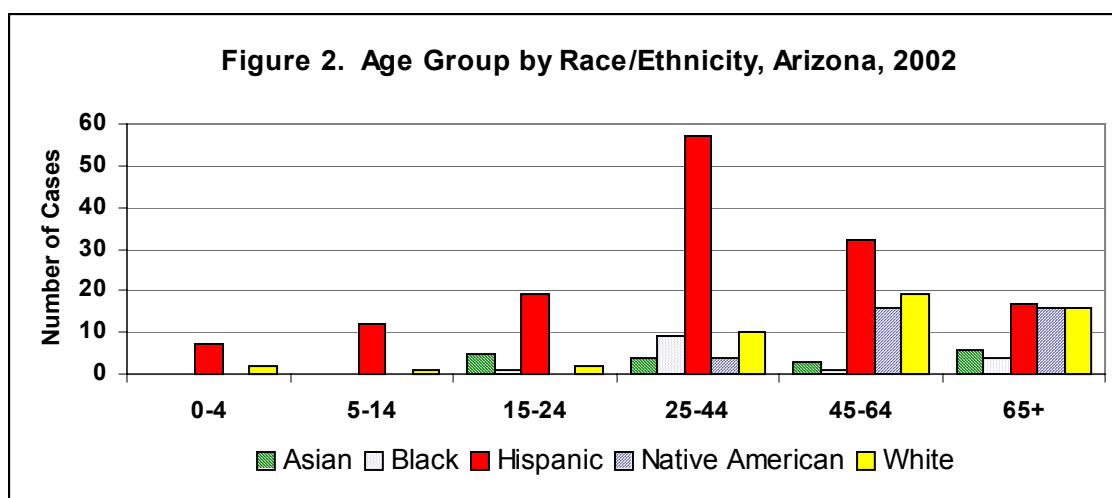


Table 2. Tuberculosis Cases by Ethnicity, Gender and Age Group, Arizona, 2002

	Age Group						Total by Ethnicity		
	< 5	5-14	15-24	25-44	45-64	65+	No.	(%)	Rate ^{a,b}
White, Not Hispanic									
Male	0	0	1	6	18	8	33		
Female	2	1	1	4	1	8	17		
Total	2	1	2	10	19	16	50	(19.0)	1.4
Black, Not Hispanic									
Male	0	0	1	6	0	3	10		
Female	0	0	0	3	1	1	5		
Total	0	0	1	9	1	4	15	(5.7)	8.9
Hispanic or Latino ^c									
Male	3	3	14	43	21	9	93		
Female	4	9	5	14	11	8	51		
Total	7	12	19	57	32	17	144	(54.8)	10.4
Native American ^d									
Male	0	0	0	4	11	9	24		
Female	0	0	0	0	5	7	12		
Total	0	0	0	4	16	16	36	(13.7)	13.2
Asian ^e									
Male	0	0	2	3	1	4	10		
Female	0	0	3	1	2	2	8		
Total	0	0	5	4	3	6	18	(6.8)	17.1
Total by Gender									
Male	3	3	18	62	51	33	170	(64.6)	6.2
Female	6	10	9	22	20	26	93	(35.4)	3.4
Total by Age Group									
No.	9	13	27	84	71	59	263		
(%)	(3.4)	(4.9)	(10.3)	(31.9)	(27.0)	(22.4)		(100.0)	
Rate ^{a,b}	2.2	1.6	3.5	5.2	6.2	8.3			4.8

^aRate per 100,000 population.

^bPopulation denominators for 2002 are estimates from the Arizona Department of Economic Security .

^cPersons of Hispanic or Latino origin may be of any race.

^dIncludes American Indians and Native Alaskans.

^eIncludes Native Hawaiians and Other Pacific Islanders.

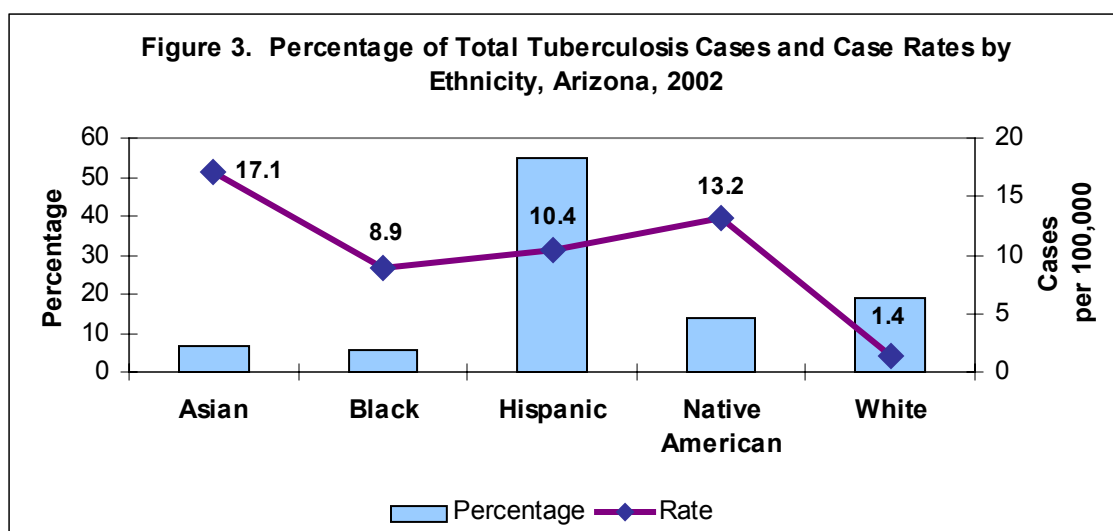


Table 3. Tuberculosis Cases by Form of Disease and Vital Status at Diagnosis, Arizona, 2002

Form of Disease	Alive at Diagnosis		Diagnosis After Death		Total Cases	
	No.	(%)	No.	(%)	No.	(%)
Pulmonary ^a	188		5		193	(73.4)
Extrapulmonary ^b	41		4		45	(17.1)
Cases with Both Pulmonary and Extrapulmonary Disease ^c	24		1		25	(9.5)
Total (%)	253	(96.2)	10	(3.8)	263	(100.0)

^aIncludes cases with pulmonary listed as major site of disease and no additional site of disease.

^bIncludes cases with pleural, lymphatic, bone and/or joint, meningeal, peritoneal, or other site, excluding pulmonary, listed as the major site of disease.

^cIncludes military cases.

Table 4. Drug Resistance Among U.S.-born and Foreign-born Tuberculosis Cases, Arizona, 1998-2002

Year	INH Resistance ^{a,b}			Multi-Drug Resistant ^{a,c}			Other Drug Resistance ^{a,d}		
	U.S.-born	Foreign-born	Total ^e	U.S.-born	Foreign-born	Total ^e	U.S.-born	Foreign-born	Total ^e
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
1998	6 (4.8)	4 (5.0)	10 (4.9)	0 (0.0)	1 (1.3)	1 (0.5)	10 (8.0)	4 (5.0)	14 (6.8)
1999	2 (1.5)	4 (4.3)	6 (2.7)	0 (0.0)	2 (2.2)	2 (0.9)	18 (13.6)	9 (9.7)	27 (12.0)
2000	2 (2.1)	13 (10.5)	15 (6.8)	0 (0.0)	2 (1.6)	2 (0.9)	10 (10.4)	9 (7.3)	19 (8.6)
2001	4 (3.3)	5 (4.9)	9 (4.0)	0 (0.0)	3 (2.9)	3 (1.3)	9 (7.4)	9 (8.8)	18 (8.0)
2002	1 (1.0)	9 (8.1)	10 (4.8)	0 (0.0)	1 (0.9)	1 (0.5)	7 (7.3)	14 (12.6)	22 (10.6)

^aMore than 95% of isolates had susceptibility testing performed.

^bResistance to at least isoniazid without rifampin resistance.

^cResistance to at least isoniazid and rifampin (multi-drug resistance).

^dOther drug resistance without isoniazid resistance.

^eIncludes persons of unknown country of birth.

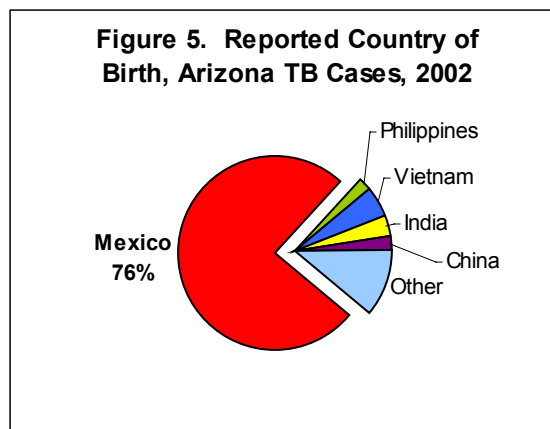
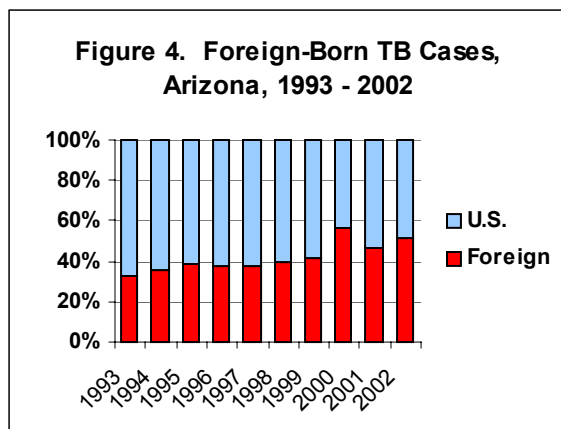


Table 5. Tuberculosis Cases by Selected Risk Factors, Arizona, 1998 - 2002

	1998		1999		2000		2001		2002	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Occupation										
Correctional Facility Worker	1	(0.4)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
Health Care Worker	3	(1.2)	1	(0.4)	6	(2.3)	5	(1.7)	3	(1.1)
Migrant Farm Worker	5	(2.0)	6	(2.3)	9	(3.4)	6	(2.1)	8	(3.0)
Reported Behaviors										
Injecting Drug Use ^a	6	(2.4)	10	(3.8)	11	(4.2)	11	(3.8)	11	(4.2)
Non-injecting Drug Use ^a	10	(3.9)	20	(7.6)	20	(7.7)	22	(7.6)	25	(9.5)
Excess Alcohol Use ^a	39	(15.4)	55	(21.0)	46	(17.6)	61	(21.1)	39	(14.8)
Type of Residence										
Long Term Care Facility ^b	4	(1.6)	7	(2.7)	7	(2.7)	12	(4.2)	8	(3.0)
Correctional Facility ^b	14	(5.5)	18	(6.9)	21	(8.0)	16	(5.5)	19	(7.2)
Homeless ^a	29	(11.4)	36	(13.7)	39	(14.9)	46	(15.9)	28	(10.6)
Country of Birth										
Foreign Born ^c	100	(39.4)	109	(41.6)	147	(56.3)	133	(46.0)	136	(51.7)
Underlying Disease										
HIV infection, All Ages ^d	14	(5.5)	16	(6.1)	18	(6.9)	12	(4.2)	17	(6.5)
HIV infection, 25-44 Years Old ^d	11	(15.9)	10	(10.1)	13	(14.3)	8	(9.0)	12	(14.3)
Total Cases	254		262		261		289		263	

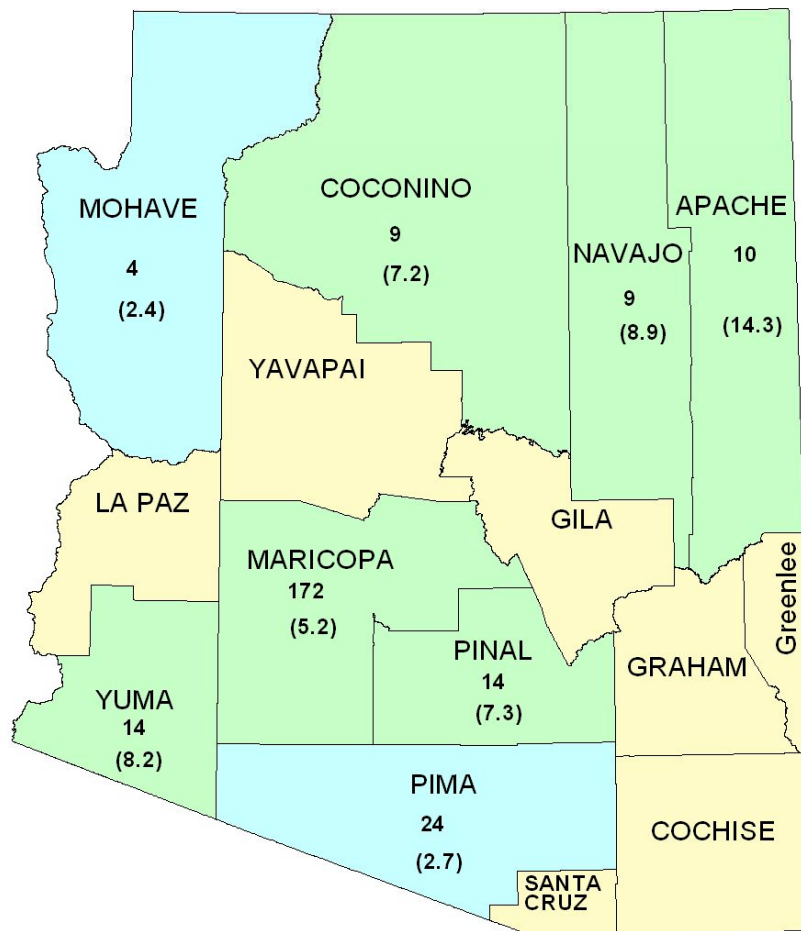
^aWithin one year prior to diagnosis of tuberculosis.

^bResidence at time of diagnosis.

^cIncludes persons born outside the United States and its territories.

^dTuberculosis cases with a reported positive HIV test result. The percent positive represents HIV co-infection among all verified TB cases, including those not tested for HIV infection.

Tuberculosis Cases and Case Rates per 100,000 Population, Arizona, 2002



Legend

- Numbers and rates for counties are not disclosed if cases ≤ 3
- 1.1 - 4.8 per 100,000 population (4.8 is the state rate for 2002)
- > 4.8 per 100,000 population

Denominators for computing 2002 rates are from Arizona Department of Economic Security.

Note: Figures in parentheses denote rates per 100,000 population.



Figure 6. Tuberculosis Cases and Case Rates per 100,000 (in parentheses) by County, Arizona, 2002.

The *Tuberculosis Surveillance Report* is published annually by the Arizona Department of Health Services, Tuberculosis Control Section. All data are provisional. Report finalized on 5/6/2003 based on data available 3/24/2003.